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IAP9 Rec'd PCT/PTO 25 AUG 2006

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Naohiro YOSHIDA

Application No.: New U.S. Patent Application

Filed: August 25, 2006

Docket No.: 129200

For: GAS LEAK DETECTION DEVICE AND METHOD FOR SAME

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

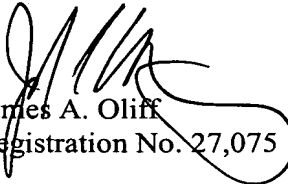
Sir:

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. Unless otherwise indicated herein, one copy of each reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.
- ☒ 2. Relevance of one or more non-English language reference is discussed in the present specification. See References 2 and 3.
- ☒ 3. One or more reference cited herein was cited in the International Search Report. An English language version of the International Search Report is attached for the Examiner's information. See References 9-15.
- ☒ 4. In accordance with 37 CFR §1.98(a)(2)(ii), copies of any U.S. patents and patent application publications are not attached.
- ☒ 5. A concise explanation of the relevance of one or more non-English language reference cited herein appears in the Appendix attached hereto. See References 4-8.
- ☒ 6. An English language Abstract of one or more non-English language reference is attached hereto. See References 2-15.
- ☒ 7. A computer-generated English language translation of one or more Japanese Patent Publication cited herein has been obtained from the website of the Japanese Patent

Office ([<http://www.jpo.go.jp>]), and is attached, but has not been reviewed for accuracy.  
See References 2-15.

Respectfully submitted,

  
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|             |   |
|-------------|---|
| 2003-308866 | <p>When a value for an output current <math>i</math> in a fuel cell is smaller than a threshold during regenerating of decelerating energy (S1), the output current <math>i</math> is shut off by an output current circuit breaker to stop the electric generation of a fuel cell (S4) and, in turn, a purge valve for discharging water together with the fuel gas from a circulation system and a pressure reducing control valve for controlling the supply of the fuel gas from a fuel supply source are forcibly closed (S2, S3). At this point the pressure in the closed space of the fuel gas circulating supply system is detected by a pressure gauge, and when the pressure gauge shows pressure dropping at a reference speed or faster, the leakage of the fuel gas is determined (S5-S7).</p> <p>This conventional technology discloses a method for detecting gas leaks in a fuel cell system, but fails to disclose the method claimed in the present invention for maintaining accuracy of pressure measurement by selecting a plurality of sensors having different measurement range of each other.</p> |
| 08-329965   | <p>An end stop valve 8 arranged downstream from a fuel cell 7 and a main stop valve 9 arranged upstream are connected through a fuel path 10, and a pressure notifying device 11 is set in the fuel path 10. When fuel gas is supplied from a fuel supply source with the end stop valve 8 closed and the main stop valve 9 open, the fuel gas fills the fuel cell 7 and the fuel path 10. When the main stop valve 9 is closed, the fuel gas is sealed in the fuel cell 7 and the fuel path 10, and the sealed gas pressure is detected with the pressure notifying device 11. If the fuel gas does not leak from the fuel cell 7, the sealed gas pressure stays constant, but when the fuel gas leaks, the sealed gas pressure gradually lowers overtime.</p> <p>This conventional technology discloses a method for detecting gas leak in a fuel cell system, but fails to disclose the method claimed in the present invention for maintaining accuracy of pressure measurement by selecting a plurality of sensors having different measurement range of each other.</p>   |

APPENDIX  
1/2

| Document Number<br>or Title | Explanation of Relevance   |
|-----------------------------|--|
| <b>2003-068344</b>          | <p>The fuel cell system, equipped with a reformer 1 forming a reformed gas mainly of hydrogen from the raw material containing a liquid fuel, is equipped with plural sets (C1.V1 to Cn.Vn) of an evaporator to feed the raw material to the reformer 1, and a combustion apparatus to feed a heated gas as the heat source to the evaporator in such series that the heated gas discharged from an upstream evaporator is introduced to a downstream combustion apparatus. At a minimum load, only the first combustion apparatus C1 and evaporator V1 are operated, and with load increases, the number of sets to be operated are increased. Since the combustion gas from an upstream combustion apparatus is introduced to the downstream evaporator, the evaporator in every set is always kept above the fuel evaporation temperature, thereby feeding the fuel vapor to the reformer 1 in a quick response to the fluctuations of the load.</p> <p>This conventional technology discloses a control method for pressure inside the fuel cell, but fails to disclose the method claimed in the present invention for maintaining accuracy of pressure measurement by selecting a plurality of sensors having different measurement range of each other.</p> |
| <b>2002-216812</b>          | <p>A pump 410 used for circulation of hydrogen gas at normal operation is used for extracting hydrogen gas from a hydrogen storage alloy tank 200 at low-temperature start-up. By commonly using one pump for both circulation and extraction of hydrogen gas, weight as well as space can be saved when mounting on a car.</p> <p>This conventional technology discloses the use of hydrogen absorption alloy, but fails to disclose the method claimed in the present invention for maintaining accuracy of pressure measurement by selecting a plurality of sensors having different measurement range of each other.</p>   |
| <b>2003-148252</b>          | <p>This fuel supply device 1 calculates pressure drop amount in a hydrogen supply passage 12 from a total amount of hydrogen equivalent to the sum of the amount of unused hydrogen discharged from a fuel cell 2 and the amount of used hydrogen consumed by the fuel cell 2 using a first sensor 3 to a third sensor 5, an opening sensor 6, and an ECU 7. If the detected pressure drop amount exceeds the calculated pressure drop amount by a predetermined value or more, it is judged that there is a hydrogen leak.</p> <p>This conventional technology discloses pressure measurement for fuel cell systems, but fails to disclose the method claimed in the present invention for maintaining accuracy of pressure measurement by selecting a plurality of sensors having different measurement range of each other.</p>   |

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10/590855

IAP9 Rec'd PCT/PTO 25 AUG 2006

Sheet 1 of 1

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| Form PTO-1449<br>(REV. 1/06)  |             | US Dept. of Commerce<br>PATENT & TRADEMARK OFFICE      |            | ATTY DOCKET NO.<br>129200  |                             | APPLICATION NO.<br>New U.S. Patent<br>Application |  |
| INFORMATION DISCLOSURE STATEMENT<br><br>(Use several sheets if necessary)   |             |  |            | APPLICANT<br>Naohiro YOSHIDA<br><br>FILING DATE<br>August 25, 2006 |                             |   |  |
|   |             |  |            |  |                             |   |  |
| U.S. PATENT DOCUMENTS   |             |  |            |  |                             |   |  |
| Examiner<br>Initials  | Cite<br>No. | Document Number  | Date       | Name   |                             |   |  |
|   | 1           | 6,851,298 B2   | 2/8/2005   | Miura et al.   |                             |   |  |
| FOREIGN PATENT DOCUMENTS  |             |  |            |  |                             |   |  |
| Examiner<br>Initials  | Cite<br>No. | Document Number  | Date       | Country  | With<br>English<br>Abstract | With<br>English<br>Translation                    |  |
|   | 2           | JP A 2002-151126                                       | 5/24/2002  | Japan  | X                           | X   |  |
|   | 3           | JP A 2003-308868                                       | 10/31/2003 | Japan  | X                           | X   |  |
|   | 4           | JP A 2003-068334                                       | 3/7/2003   | Japan  | X                           | X   |  |
|   | 5           | JP A 2002-216812                                       | 8/2/2002   | Japan  | X                           | X   |  |
|   | 6           | JP A 2003-148252                                       | 5/21/2003  | Japan  | X                           | X   |  |
|   | 7           | JP A 2003-308866                                       | 10/31/2003 | Japan  | X                           | X   |  |
|   | 8           | JP A 8-329965  | 12/13/1996 | Japan  | X                           | X   |  |
|   | 9           | JP A 2002-168663                                       | 6/14/2002  | Japan  | X                           | X   |  |
|   | 10          | JP A 2001-032751                                       | 2/6/2001   | Japan  | X                           | X   |  |
|   | 11          | JP A 2004-031234                                       | 1/29/2004  | Japan  | X                           | X   |  |
|   | 12          | JP A 2004-022198                                       | 1/22/2004  | Japan  | X                           | X   |  |
|   | 13          | JP A 2002-373685                                       | 12/26/2002 | Japan  | X                           | X   |  |
|   | 14          | JP A 6-223859  | 8/12/1994  | Japan  | X                           | X   |  |
|   | 15          | JP A 2004-095425                                       | 3/25/2004  | Japan  | X                           | X   |  |
|   |             |  |            |  |                             |   |  |
| OTHER DOCUMENTS   |             |  |            |  |                             |   |  |
| Examiner<br>Initials  | Cite<br>No. | (Including Author, Title, Date, Pertinent Pages, etc.) |            |  |                             |   |  |
|   |             |  |            |  |                             |   |  |
| EXAMINER  |             |  |            |  | DATE CONSIDERED             |   |  |
| Examiner: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |             |  |            |  |                             |   |  |

Date: August 25, 2006